

**REMARKS**

Applicants have cancelled claim 14 without prejudice of disclaimer of its subject matter. Upon entry of this Amendment, claims 1-7, 9-12, and 15-20 will be pending and under current examination.

In the Office Action<sup>1</sup>, the Examiner took the following actions:

- (a) objected to claim 14 as being improper dependent form;
- (b) rejected claims 1, 2, 4-6, 9-11, and 14-16 under 35 U.S.C. § 102(b) as being anticipated by Takizawa et al., JP 2001-006215 ("Takizawa"), or in the alternative, under 35 U.S.C. § 103(a) as unpatentable over Takizawa in view of Wreede et al., U.S. Patent No. 4,789,211 ("211");
- (c) rejected claims 1, 2, 4-7, 9-12, and 14-16 under 35 U.S.C. § 103(a) as being unpatentable over 211 in view of Mishima et al., U.S. Pat. App. Pub. No. 2002/0096995 ("Mishima") and JP 64-040882, also published as JP 2001-040882 ("JP 882");
- (d) rejected claims 1, 2, 4-7, 9-12, and 14-16 under 35 U.S.C. § 103(a) as being unpatentable over Takizawa in view of 211, Mishima, and JP 882;
- (e) rejected claims 1-7, 9-12, and 14-20 under 35 U.S.C. § 103(a) as being unpatentable over Horigoma et al., JP 2002-123949 ("Horigoma") in view of 211, Mishima, and JP 882, and additionally rejected claims 1-7, 9-12, and 14-20 over these references in view of Lawrence et al., U.S. Pat. App. Pub. No. 2005/0136333 ("Lawrence"); and
- (f) rejected claims 1-7, 9-12, and 14-20 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-11 of Hirao et al., U.S. Patent No. 7,031,037 ("Hirao") in view of 211 combined with Wreede et al., U.S. Patent No. 4,329,409 ("409") or Kurland et al., U.S. Patent No. 4,318,970 ("Kurland").

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<sup>1</sup> The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Office Action.

**Claim Objection**

As noted above, Applicants have cancelled claim 14 without prejudice or disclaimer of its subject matter. Applicants respectfully request withdrawal of the objection to claim 14.

**Rejection Under Either 35 U.S.C. § 102(b) or § 103(a)**

Claims 1, 2, 4-6, 9-11, and 14-16 were rejected under either 35 U.S.C. § 102(b) as being anticipated by Takizawa, or under 35 U.S.C. § 103(a) as being unpatentable over Takizawa in view of 211. As noted above, Applicants have cancelled claim 14 without prejudice or disclaimer of its subject matter.

Applicants respectfully request withdrawal of the rejection of claims 1, 2, 4-6, 9-11, 15, and 16 under 35 U.S.C. § 102(b) as being anticipated by Takizawa.

In order to properly establish anticipation under 35 U.S.C. § 102, the Federal Circuit has held that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Furthermore, “[t]he identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9USPQ2d 1913, 1920 (Fed. Cir. 1989). See also M.P.E.P. § 2131.

Takizawa fails to anticipate Applicants’ claimed invention, at least because Takizawa does not disclose “a first inorganic intermediate layer ... the first inorganic intermediate layer being a diffusion barrier for organic compounds,” as recited in independent claim 1. Takizawa merely discloses “acid-resisting layers 7 and 8

prepared in the front face of the [transparent] substrates 3 and 4" and "acid-resisting layers 5 and 6 prepared in the interface of a recording layer 2 and the [transparent] substrates 3 and 4" (Computer-generated English translation of Takizawa, paragraph [0010]). Takizawa discloses that the acid-resisting layers help prevent "energy loss by the echo of the signal beam 10 and a reference beam 11" and that "record of the incorrect information by the reflected light is prevented." See *id.* at paragraphs [0012] and [0013]. Takizawa does not disclose any other function for or attribute any other property to the acid-resisting layers.

Takizawa discloses that "other layers, such as a moisture permeation prevention layer and a binder layer, may be prepared between a [transparent] substrate and a recording layer," (Computer-generated English translation of Takizawa, paragraph [0018], emphasis added). However, moisture permeation prevention is not the same as Applicants' claimed diffusion barrier for organic compounds. Further, Takizawa's moisture permeation prevention layer, is not the same as Takizawa's acid-resisting layers. Moreover, Takizawa does not attribute moisture permeation prevention to the acid-resisting layers, and instead discloses that "[i]n this case, an acid-resisting layer can be prepared in the interface of the arbitration which should prevent an echo" (*Id.*, paragraph [0018]). Thus, even if "other layers, such as a moisture permeation prevention layer" are added to the disclosure of Takizawa, the acid-resisting layers of Takizawa only serve to "prevent an echo" of light. *Id.*

Thus, Takizawa does not disclose "a first inorganic intermediate layer ... the first inorganic intermediate layer being a diffusion barrier for organic compounds," as recited in independent claim 1. For at least this reason, Takizawa fails to anticipate

independent claim 1. Independent claim 15, while differing in scope, recites similar limitations and is therefore also not anticipated by Takizawa. Independent claim 16 similarly recites “forming an inorganic intermediate layer … the inorganic intermediate layer being a diffusion barrier for organic compounds,” which is not disclosed by Takizawa, at least for the reasons presented above. Thus, independent claim 16 is also not anticipated by Takizawa. Claims 2, 4-6, and 9-11 are also not anticipated by Takizawa, at least due to their direct or indirect dependence from base claim 1. Applicants therefore respectfully request withdrawal of the rejection of claims 1, 2, 4-6, 9-11, 15, and 16 under 35 U.S.C. § 102(b).

Applicants respectfully request withdrawal of the rejection of claims 1, 2, 4-6, 9-11, 15, and 16 under 35 U.S.C. § 103(a) as being unpatentable over Takizawa in view of 211.

The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. Such an analysis should be made explicit and cannot be premised upon mere conclusory statements. See M.P.E.P. § 2142, 8th Ed., Rev. 6 (Sept. 2007). “A conclusion of obviousness requires that the reference(s) relied upon be enabling in that it put the public in possession of the claimed invention.” M.P.E.P. § 2145. Furthermore, “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art” at the time the invention was made. M.P.E.P. § 2143.01(III), internal citation omitted. Moreover, “[i]n determining the differences between the prior art and

the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” M.P.E.P. § 2141.02(l), internal citations omitted (emphasis in original).

Applicants have established that Takizawa does not anticipate Applicants’ invention, as recited in independent claim 1. Takizawa also fails to suggest Applicants’ invention. The Examiner alleged that

“[t]he benefit ascribed to the coating by the applicant is inherent to the resulting product, which is disclosed as preventing the migration of water, which is a much smaller molecule than those identified in the instant specification, so they would inherently prevent the migration of larger molecules and so meets the recited limitations of the claims”

(Office Action at 3).

Applicants respectfully disagree. As established above, Takizawa merely discloses that “other layers, such as a moisture permeation prevention layer … may be prepared between a [transparent] substrate and a recording layer” (Computer-generated English translation of Takizawa, paragraph [0018]). Applicants also established above that Takizawa’s “moisture permeation prevention layer” is not the same as Takizawa’s acid-resisting layer. Takizawa does not make any disclosure or suggestion to compare Takizawa’s moisture permeation prevention layer and acid-resisting layer. However, even if one compared Takizawa’s moisture permeation prevention layer and acid-resisting layer, as the Examiner has done, neither of Takizawa’s moisture permeation prevention layer and acid-resisting layer disclose or suggest Applicants’ “first inorganic intermediate layer formed on the first surface of the

plastic substrate, the first inorganic intermediate layer being a diffusion barrier for organic compounds,” as recited in independent claim 1.

Instead, Takizawa is silent regarding preventing the diffusion of organic compounds into the recording layer. Takizawa provides no disclosure or suggestion that either the moisture permeation prevention layer or acid-resisting layer would be a diffusion barrier for organic compounds. Further, regarding the Examiner’s assertion of the size of organic compounds in comparison with water, Applicants point out that Applicants’ claimed inorganic intermediate layer serves as a diffusion barrier for organic compounds, at least because organic compounds are much less soluble in inorganic compounds than they are in other organic compounds. The size of the organic compounds, in comparison with water, is irrelevant. Thus, Applicants’ claimed inorganic intermediate layer prevents diffusion between the claimed plastic substrate and claimed organic recording layer, at least due to solubility differences between the claimed inorganic intermediate layer and the claimed plastic substrate and organic recording layer. Therefore, the mere recitation of a “water permeability prevention layer” in Tazikawa fails to disclose or suggest a “first inorganic intermediate layer” or “the first inorganic intermediate layer being a diffusion barrier for organic compounds,” as recited in independent claim 1. Thus, for at least these reasons, Tazikawa fails to disclose or suggest Applicants’ invention, as recited in independent claim 1.

211 also fails to disclose or suggest Applicants’ claimed invention. The Examiner cited 211 for its disclosure of photopolymer compositions. However, 211 merely discloses a “holograph assembly [that] has first and second hydrophobic substrate[] layers” and a “hydrophobic image layer [that] is protected against moisture” by a “water

absorbent layer" (211, Abstract). 211 is clearly directed to the use of water absorbent layers in a holograph assembly. For example, as Applicants established in their Amendment filed March 28, 2007, 211's moisture barrier layer 15 enhances the moisture transfer resistance and thus enhances the life of the completed holographic assembly. See 211, col. 2, lines 31-38. The water absorbent layers disclosed by 211 are thus directed to enhancing the life of a holographic assembly. 211 is silent regarding preventing the diffusion of organic compounds. As similarly established above, the mere recitation of a water absorbent layer does not disclose or suggest a "first inorganic intermediate layer" or "the first inorganic intermediate layer being a diffusion barrier for organic compounds," as recited in independent claim 1.

Moreover, even if one did compare the water absorbent layers of 211 to Applicants' first inorganic intermediate layer, as the Examiner appears to suggest, but which Applicants do not concede, the water absorbent layers of 211 do not disclose or suggest Applicants' claimed first inorganic intermediate layer. 211 discloses that "the pre-holographic element is further processed by exposing the photosensitive layer ... to an actinic interference pattern to record a latent image thereon" and that "[a]fter the holographic emulsion layer 18 is exposed and developed, it is protected by the application of inner and outer hydrophobic cover layers 20 and 22 which carry second water absorbent layer 24 therebetween" (211, col. 3, lines 9-13 and 22-25). Thus, the hydrophobic cover layers and water absorbent layer protect the holograph of 211 after its latent image is exposed and developed. In contrast, Applicants' claimed first inorganic intermediate layer and organic recording layer are formed before a holograph is recorded in Applicants' claimed holographic optical recording medium.

Thus, for at least these reasons, 211 fails to disclose or suggest Applicants' invention, as recited in independent claim 1. Also for at least these reasons, 211 fails to overcome the deficiencies of Tazikawa. Thus, Tazikawa and 211, separately or in combination, fail to disclose or suggest Applicants' invention, as recited in independent claim 1. Independent claim 1 should therefore be allowable over Tazikawa and 211, separately or in combination. Independent claims 15 and 16, while differing in scope, recite similar limitations as claim 1 and should also be allowable over Tazikawa and 211. Claims 2, 4-6, and 9-11 should also be allowable, at least due to their dependence from base claim 1. Applicants therefore respectfully request withdrawal of the rejection of claims 1, 2, 4-6, 9-11, 15, and 16 under 35 U.S.C. § 103(a).

**Additional Rejections Under 35 U.S.C. § 103(a)**

**Claims 1, 2, 4-7, 9-12, and 14-16**

As noted above, Applicants have cancelled claim 14 without prejudice or disclaimer of its subject matter. Applicants respectfully request withdrawal of the rejection of claims 1, 2, 4-7, 9-12, 15, and 16 as being unpatentable over 211 in view of Mishima and JP 882. Applicants have established above that 211 fails to disclose or suggest Applicants' invention, as recited in independent claim 1. Neither Mishima nor JP 882 disclose or suggest Applicants' claimed invention. Mishima merely discloses “[a] light-emitting device comprising: a pair of electrodes formed on a substrate; and organic compound layers provided in between the electrodes” (Mishima, Abstract). JP 882 merely discloses a “[h]ologram comprises holographic functional layer consisting [of] vinylcarbazole polymer and protective layer(s) laid on at least one side of volume-phase type holographic image-recorded holographic functional layer” and “[a]t least one

of the protective layers has an inorganic layer on its surface" (Derwent English Abstract of JP 882) (emphasis omitted).

The Examiner cited Mishima and JP 882 each for their alleged disclosure of materials for use in optical or holographic devices. See Office Action at 4. However, neither Mishima nor JP 882 discloses or suggests preventing diffusion of organic compounds, and certainly not a "first inorganic intermediate layer" or "the first inorganic intermediate layer being a diffusion barrier for organic compounds," as recited in independent claim 1. Further, the Examiner asserted that Mishima "specifically discuss[es] these materials as moisture ( $H_2O$ ) barrier materials and [that their] use in protecting polymeric holographic recording media is established by JP 64-040882" (Office Action at 5). However, as established above, the mere disclosure of moisture barrier materials, does not disclose or suggest preventing diffusion of organic compounds, and certainly not a "first inorganic intermediate layer" or "the first inorganic intermediate layer being a diffusion barrier for organic compounds," as recited in independent claim 1.

Thus, neither Mishima nor JP 882, separately or in combination, overcome the deficiencies of 211. Therefore, 211, Mishima, and JP 882, separately or in any combination, fail to disclose or suggest Applicants' invention, as recited in independent claim 1. Independent claim 1 should be allowable over 211, Mishima, and JP 882, separately or in any combination. Independent claims 15 and 16 should also be allowable, as they recite similar limitations as claim 1. Claims 2, 4-7, and 9-12 should also be allowable, at least due to their dependence from base claim 1. Applicants

therefore respectfully request withdrawal of the rejection of claims 1, 2, 4-7, 9-12, 15, and 16.

Applicants respectfully request withdrawal of the rejection of claims 1, 2, 4-7, 9-12, 15, and 16 as being unpatentable over Takizawa in view of 211, Mishima, and JP 882. Applicants have established above that Takizawa and 211, separately or in combination, fail to disclose or suggest Applicants' invention, as recited in independent claim 1. Further, Applicants have established that Mishima and JP 882, separately or in combination, fail to overcome the deficiencies of 211. Moreover, Mishima and JP 882, separately or in combination, fail to overcome the deficiencies of Takizawa. This is at least because, as established above, neither Mishima nor JP 882 disclose or suggest a "first inorganic intermediate layer" or "the first inorganic intermediate layer being a diffusion barrier for organic compounds," as recited in independent claim 1. Thus, independent claim 1 should be allowable over Takizawa, 211, Mishima, and JP 882, separately or in any combination. Independent claims 15 and 16 should also be allowable over Takizawa, 211, Mishima, and JP 882, separately or in any combination, as they recite similar limitations as claim 1. Claims 2, 4-7, and 9-12, should be allowable, at least due to their dependence from base claim 1. Therefore, Applicants respectfully request withdrawal of the rejection of claims 1, 2, 4-7, 9-12, 15, and 16.

Claims 1-7, 9-12, and 14-20

As noted above, Applicants have cancelled claim 14 without prejudice or disclaimer of its subject matter. Applicants respectfully request withdrawal of the rejection of claims 1-7, 9-12, and 15-20 as being unpatentable over Horigoma in view of 211, Mishima, and JP 882. Applicants have established above that 211, Mishima, and JP 882, separately or in combination, fail to disclose or suggest Applicants' invention, as recited in independent claim 1. Horigoma also fails to disclose or suggest Applicants' invention, as recited in independent claim 1, at least because Horigoma is silent regarding preventing diffusion of organic compounds, and certainly does not disclose or suggest a "first inorganic intermediate layer" or "the first inorganic intermediate layer being a diffusion barrier for organic compounds," as recited in independent claim 1. Instead, Horigoma merely discloses an "optical information record regenerative apparatus and approach of reproducing information from an optical information record medium" (Computer-generated translation of Horigoma, paragraph [0001]). The Examiner alleged that "[i]t would have been obvious ... to modify the medium exemplified by ... Horigoma ... by adding moisture barrier layers" (Office Action at 6). However, even if one did add moisture barriers to its disclosure, Horigoma would still not disclose or suggest a "first inorganic intermediate layer" or "the first inorganic intermediate layer being a diffusion barrier for organic compounds," as recited in independent claim 1.

Thus independent claim 1 should be allowable over Horigoma, 211, Mishima, and JP 882. Independent claims 15 and 16 should also be allowable, as they recite similar limitations as claim 1. Claims 2-7, 9-12, and 17-20 should also be allowable, at

least due to their respective dependence from base claim 1 or 16. Applicants therefore respectfully request withdrawal of the rejection of claims 1-7, 9-12, and 15-20.

Applicants respectfully request withdrawal of the rejection of claims 1-7, 9-12, and 15-20 under 35 U.S.C. § 103(a) as being unpatentable over Horigoma in view of 211, Mishima, and JP 882; and further in view of Lawrence. Applicants have established above that Horigoma, 211, Mishima, and JP 882, separately or in combination, fail to disclose or suggest Applicants' invention, as recited in independent claim 1. The Examiner alleged that Lawrence "teach various substrate materials for holograms," (Office action at 6) but without acceding to this allegation, Applicants submit that Lawrence is silent regarding preventing diffusion of organic compounds. Lawrence merely discloses "[h]olographic storage media including a substrate and a dye material capable of undergoing a photo-induced change" (Lawrence, Abstract). Lawrence does not disclose or suggest a "first inorganic intermediate layer" or "the first inorganic intermediate layer being a diffusion barrier for organic compounds," as recited in independent claim 1. Therefore, Lawrence does not disclose or suggest Applicants' invention, as recited in independent claim 1. Also, for at least this reason, Lawrence fails to overcome the deficiencies of any of Horigoma, 211, Mishima, and JP 882. Thus, Horigoma, 211, Mishima, JP 882, and Lawrence, separately or in combination, fail to disclose or suggest Applicants' invention, as recited in independent claim 1. Independent claim 1 should be allowable over Horigoma, 211, Mishima, JP 882, and Lawrence, separately or in combination. Independent claims 15 and 16 should also be allowable, as they recite similar limitations as claim 1. Claims 2-7, 9-12, and 17-20

should also be allowable, at least due to their respective dependence from base claim 1 or 16. Applicants therefore respectfully request withdrawal of the rejection of claims 1-7, 9-12, and 15-20.

### **Double Patenting Rejection**

Applicants respectfully request withdrawal of the non-statutory obviousness-type double patenting rejection of claims 1-7, 9-12, and 14-20. Claims 1-11 of Hirao do not disclose or suggest Applicants' invention, as recited in independent claim 1, at least because Hirao's claims do not disclose or suggest a "first inorganic intermediate layer" or "the first inorganic intermediate layer being a diffusion barrier for organic compounds," as recited in independent claim 1. 211, as established above, does not disclose or suggest Applicants' invention. 409 merely discloses "fabricating a light weight dichromated gelatin hologram package" and "at least one subbing layer which provides a barrier to atmospheric moisture" (409, Abstract). 409 is silent regarding preventing diffusion of organic compounds, and as established above, the disclosure of a moisture barrier does not disclose or suggest the claimed diffusion barrier for organic compounds. Thus, 409 does not disclose or suggest Applicants' invention, as recited in independent claim 1. Kurland also is silent regarding preventing diffusion of organic compounds, and discloses "[a]n improved process ... for attaching layers of hydrophilic, photosensitive materials onto hydrophobic plastic substrates, which comprises forming a layer of ... moisture barrier material on the substrate prior to depositing the photosensitive layer thereon" (Kurland, Abstract). Thus, Kurland fails to disclose Applicants' invention, as recited in independent claim 1. Therefore, claims 1-11 of Hirao

in combination with 211, 409, and Kurland, separately or in any combination, fail to disclose or suggest Applicants' invention, as recited in independent claim 1. Independent claim 1 should therefore be allowable. Independent claims 15 and 16 should also be allowable, as they recite similar recitations as claim 1. Claims 2-7, 9-12, 14, and 17-20 should also be allowable, at least due to their respective dependence from base claim 1 or 16. Applicants therefore request withdrawal of the non-statutory obviousness-type double patenting rejection of claims 1-7, 9-12, and 14-20.

**Conclusion:**

In view of the foregoing, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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